



1906	MADRID	935
1022	STUTTGART HBF	935
1701	LYON	940
822	HELSINKI	940
071	SAN FRANCISCO-DALLAS	940
742	PARIS	940
1118	VENEZIA	940
823	DALLAS	940
892	AMSTERDAM	940

# Independent Advice to HCNF

## Work Plan Update



# Our approach

## The assignment

Support the CNG with independent expert advice on highly technical subject matters.

## Our activities May 2019 – current

	May	Summer	September	October - November
<b>CNG sessions</b>	Introduction  Setting the scope, support related to a.o.: <ul style="list-style-type: none"><li>• noise management,</li><li>• balanced approach,</li><li>• airport expansion</li></ul>	Support on DCO, SoNA and WHO	Noise management <ul style="list-style-type: none"><li>• Noise control frameworks and noise envelopes</li><li>• International best practices</li></ul>	<ul style="list-style-type: none"><li>• Noise envelopes</li><li>• Fleet transition</li><li>• Air quality</li><li>• Respite</li><li>• Departure noise</li></ul>
<b>Studies</b>			Noise analysis for departure optimization	
<b>Meetings</b>	HCNF, CNG	HCNF, CNG, Workshop SoNA	HCNF, CNG	HCNF, CNG

# Example: noise envelope

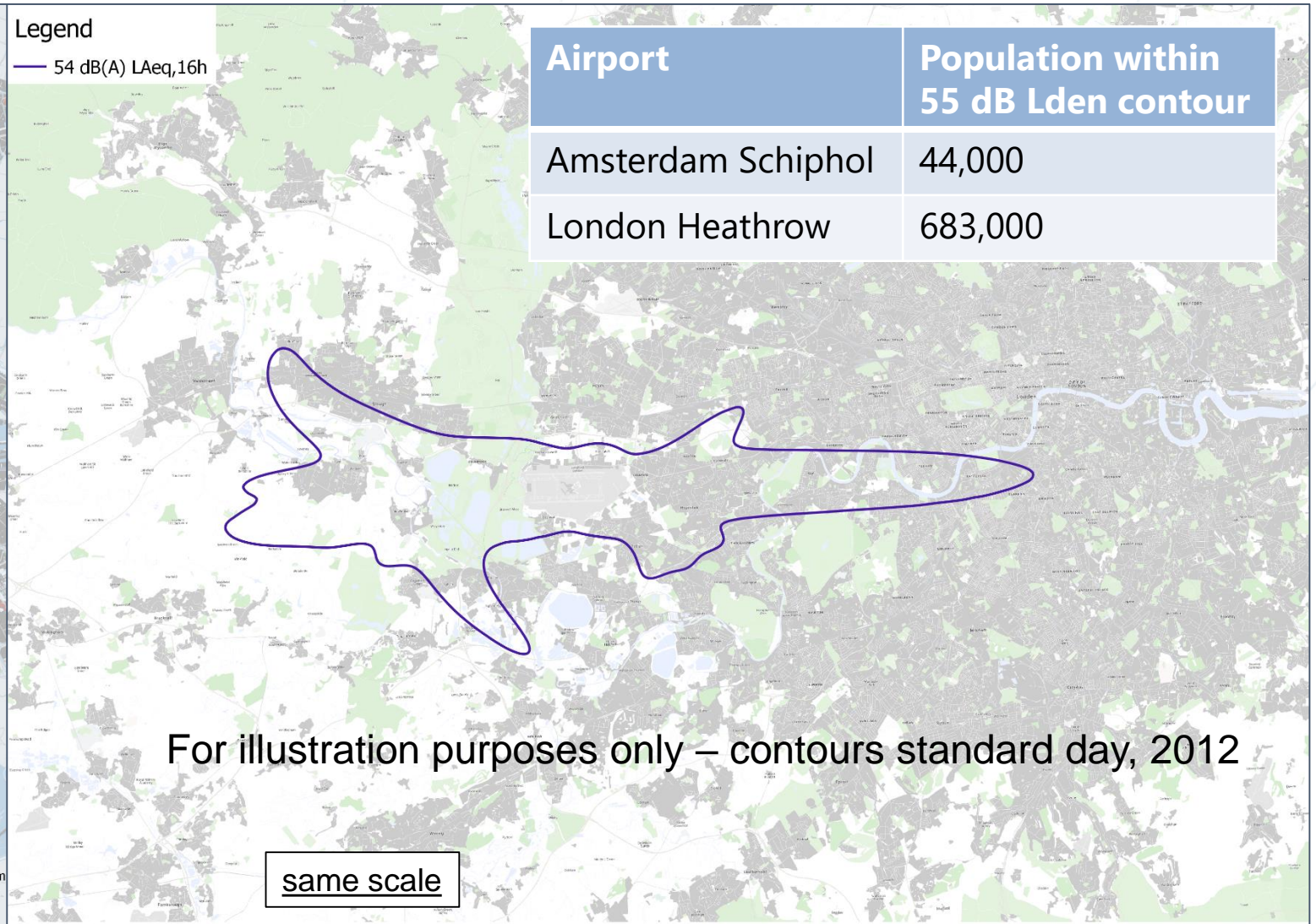
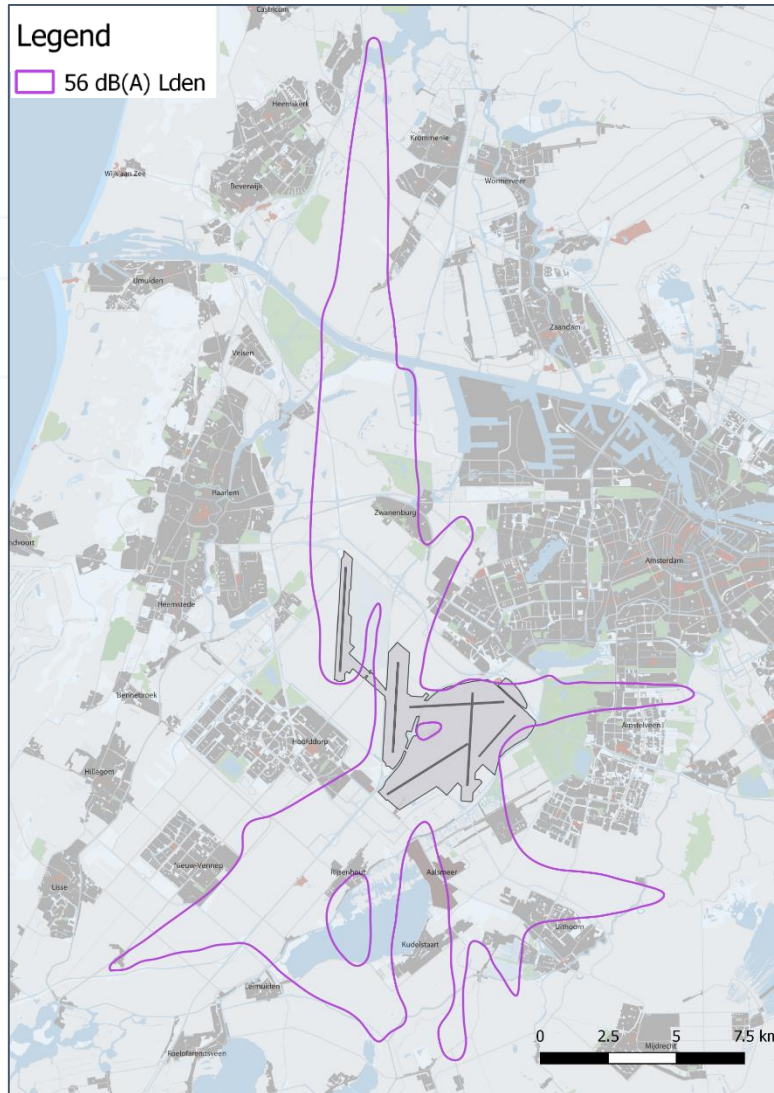
## Topics

- Key principles
- Local conditions and parameters
- Performance indicators and targets
- Forecasts on noise (reduction over time) – noise reduction vs growth

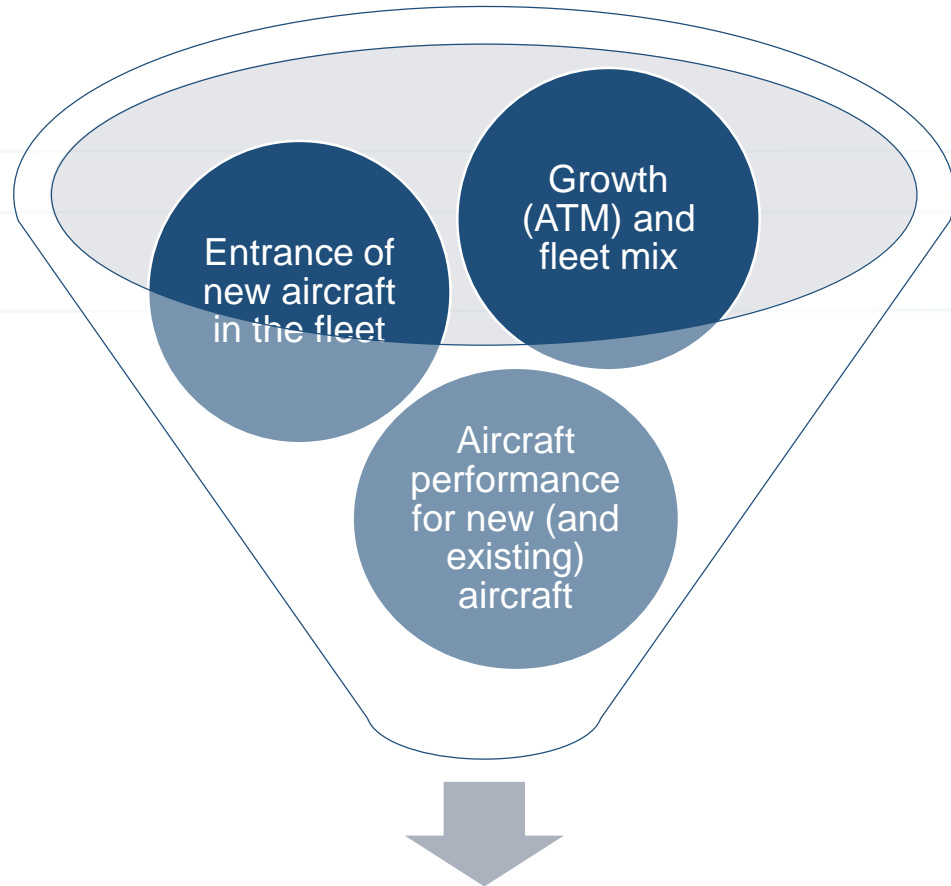
## International practices, e.g. Schiphol

- Environmental performance: max. # highly annoyed persons
- Growth to max. 500.000 ATM's until 2020, max. 32.000 ATM's 23:00 – 07:00 LT
- Expectation 2020+: yearly increase of e.g. 2% if noise reduction targets are achieved.
- Noise preferential runway use
- Pros and cons

# Comparison Schiphol (left) vs Heathrow (right)



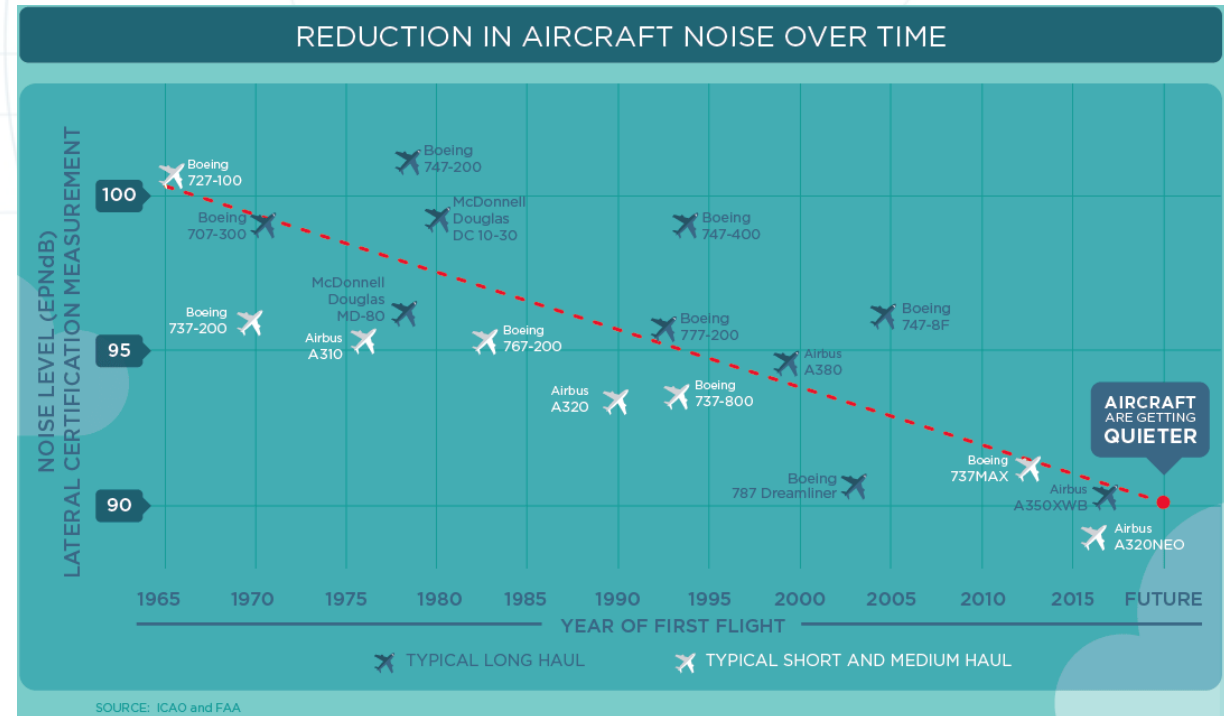
# Example: what's the impact of new aircraft on total noise?



Noise increase or reduction?

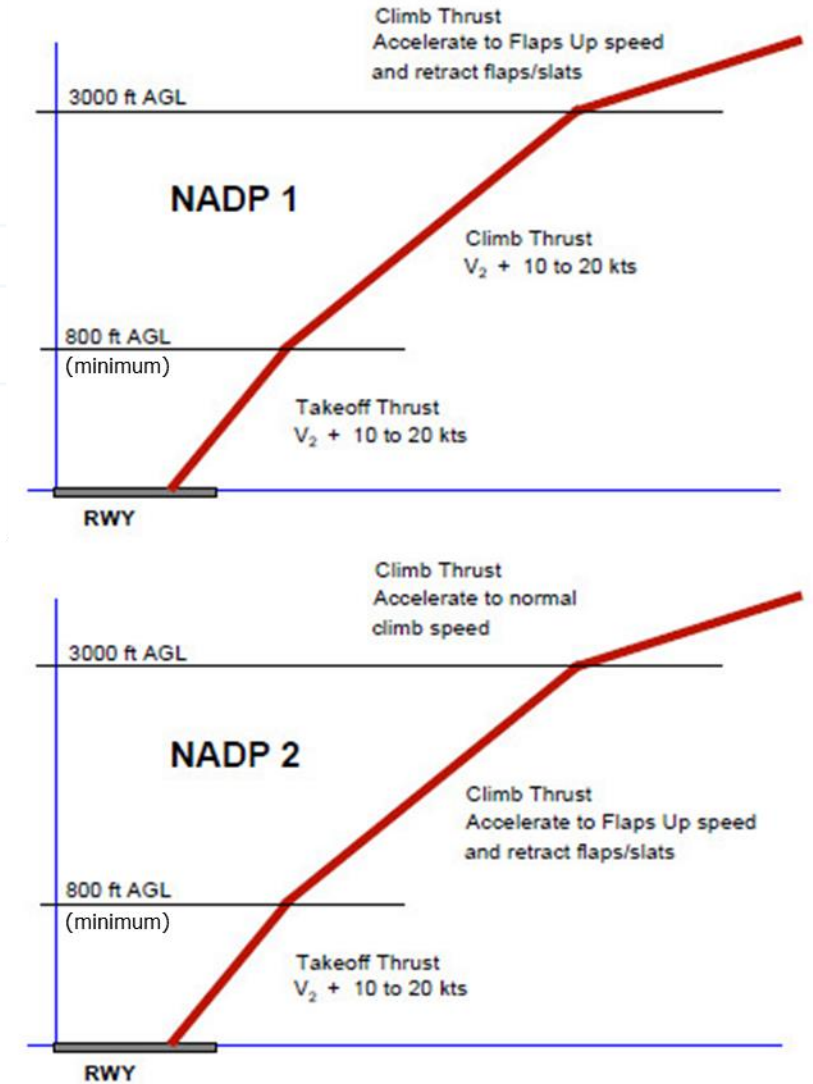
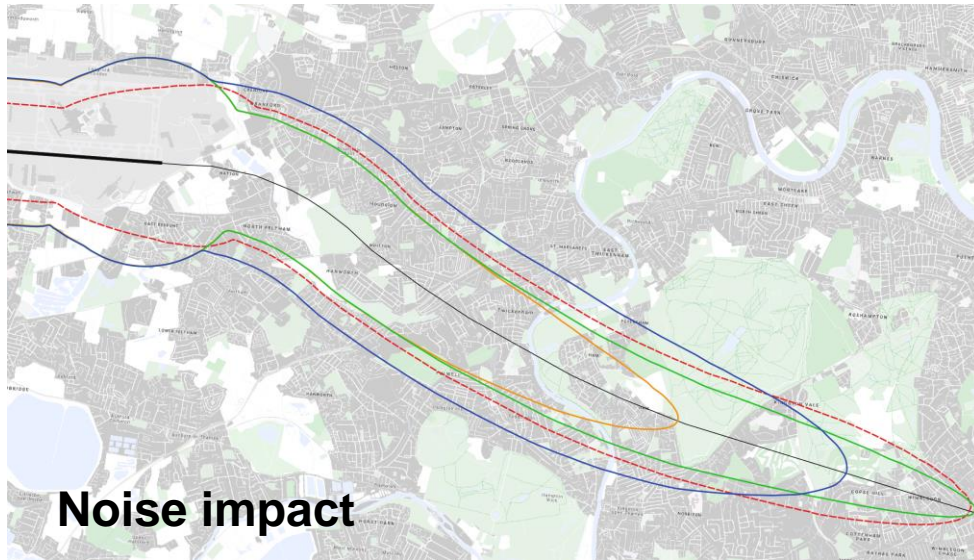


## Aircraft performance over time



# Study: Departure optimization

- Noise abatement departure procedure (NADP) 1 vs 2
- Thrust settings for take-off and climb
- Noise impact: winners and losers
- Other elements: fuel burn, CO<sub>2</sub>, NO<sub>x</sub>, engine wear



# Results achieved

## My opinion:

- CNG-meetings: knowledge sharing and discussions on highly technical subject matters, related to DCO, SoNA and HCNF.
  - Very constructive meetings.
- Work in progress: study on departure optimization.
  - Very useful to provide better insight.
- HCNF.
  - Very useful to attend and observe; difficult to contribute yet.

What we can improve: preparation for HCNF (e.g. presentations).

**But more relevant: CNG's opinion...**

# Thank you!

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